

Remarks

Applicant has amended the specification as filed to correct various obvious and inadvertent therein.

Applicant has amended independent claim 1 to recite in the preamble thereof that the method is for closed loop control of fiber orientation of a moving web being formed on a papermaking machine and the body of the claim to recite that the on-line measurements are performed on the moving web that is being formed on the papermaking machine. The application as filed on page 7 discusses the variables needed to be derived from the fiber orientation sensor measurements and states at line 5 on that page that the variable  $r_z$  is derived from the filtered FO ratio profile obtained from a scan of the FO sensor across the moving paper web. There are many references throughout the application as filed to "machine direction", "cross-machine-direction", "papermaking" and "paper machine" such as line 3 on page 3 and line 10 on page 6. Therefore applicant submits that these amendments to claim 1 do not introduce new matter.

Applicant has added new independent apparatus claims 17 and 18. An additional fee is not needed for new claims 17 and 18 as the application as filed has 16 total claims of which claim 1 is independent and after entry of this amendment will have 18 total claims of which three will be independent.

The Rejection of the Claims

The Examiner has rejected claims 1-16 under 35 U.S.C. 112, second paragraph as indefinite because "the closed loop" in line 1 of claim 1 should be changed to "closed loop control." Applicant has made that change and requests reconsideration of this rejection.

The Examiner has rejected claims 1-2, 8 and 16 under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 6,322,666 (Luontama et al.) in view of U.S. Patent No. 5,394,247 (Vahey et al.). In support thereof the Examiner says that Luontama et al. teaches all of the actions called for in claim 1 but does not

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teach the transforming of the on-line measurements to be a plurality of indices. The Examiner says with reference to column 5, line 26 to column 6, line 36 that Vahey et al. teaches that transformation and that it would have been obvious "at the time the invention was made or used to modify the teachings of Luontama et al. with the teachings of Vahey et al. because the Vahey et al. invention may be adapted for on-line use with a paper machine." (emphasis added)

The Examiner has rejected claims 9-15, which all depend on independent claim 1 as obvious over Luontama et al. in view of Vahey et al. and further in view of U.S. Patent No. 5,748,467 (Qin et al.) The Examiner cites Qin et al. as teaching the use of fuzzy or non-fuzzy logic.

Vahey et al. describe a method for measuring the tendency of a non-woven web to curl. At col. 5, lines 26 to 33 Vahey et al. describe orienting the sheet 12 so that the parallel beam 40 (see Fig. 1) is parallel to the MD so that the MD fibers produce a specular light beam and the CD fibers produce a diffuse light beam and also orienting the sheet so that beam 40 is parallel to the CD so that the MD fibers produce the diffuse beam and the CD fibers produce the specular beam.

The technique of Vahey et al. depends on rotating the sheet to obtain measurements typically every 5° of S and D which are used in determining curl (see col. 2, lines 67 et seq., col. 5, lines 34 et seq. and Fig. 4). This is not possible on a paper machine as the web on such a machine moves at a very high speed from the headbox to the take up reel and in moving from the head box and the take up reel passes through presses to remove excess moisture and usually one or more profilers. Thus the moving web on a paper machine cannot be rotated as taught by the technique of Vahey et al. and as such one of ordinary skill in the art would not be lead to adapt the Vahey et al. invention for use with a moving web on a paper machine.

In view of the foregoing applicant hereby requests reconsideration of the rejection of claims 1-2 and 8-16 as

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obvious.

New independent claims 17 and 18 also call for performing on the moving web formed on the paper machine on-line measurements of the fiber orientation.

Applicant notes that claims 3-7 would be allowable if rewritten in independent form but believes for the reasons given above that all of the claims herein are allowable over the references of record.

Reconsideration of the application in accordance with Rules 111 and 112 is requested.

Respectfully submitted,

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Respectfully, 

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